



(12) **United States Patent**
Morales et al.

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(54) **DEVICES AND METHODS FOR HEART VALVE REPAIR**

(56) **References Cited**

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(21) Appl. No.: **14/589,855**

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(57) **ABSTRACT**

Methods and devices provide constriction of a heart valve annulus to treat cardiac valve regurgitation and other conditions. Embodiments typically include a device for attaching a cinching or tightening apparatus to a heart valve annulus to reduce the circumference of the annulus, thus reducing valve regurgitation. Tightening devices may include multiple tethered clips, multiple untethered crimping clips, stabilizing devices, visualization devices, and the like. In one embodiment, a plurality of tethered clips is secured circumferentially to a valve annulus, and the tether coupling the clips is cinched to reduce the circumference of at least a portion of the annulus. Methods and devices may be used in open heart surgical procedures, minimally invasive procedures, catheter-based procedures, and/or procedures on beating hearts or stopped hearts.

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(58) **Field of Classification Search**
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